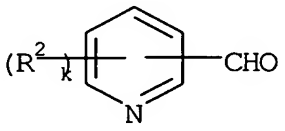
REMARKS

By the foregoing several amendments have been made in the specification and abstract. Claim 1 has been amended, claims 2-6 have been cancelled and new independent claim 7 has been added. Thus, claims 1 and 7 remain in the application.

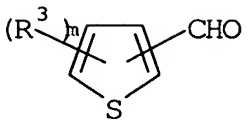
Claims 1-6 were rejected in the Office Action under 35 U.S.C. §112, first paragraph, because the specification, while being enabling for making the product compounds wherein the heterocyclic moiety of the heterocyclic aldehyde is 3-pyridine, 6-methyl-2-pyridine, or 3-thiopehane, allegedly does not reasonably provide enablement for making all heteocyclic aldehydes with the instant process for the reasons discussed on pages 3-6 of the Office Action. This rejection is hereby traversed and reconsideration thereof is respectfully requested in view of the above amendments to the claims and Applicants' remarks set forth below.

By the above amendments, claim 1 as amended and new claim 7 are directed to the process for preparing heterocyclic aldehyde according to the invention wherein the heterocyclic aldehyde is limited to the aldehyde having a specific structure represented by the following formula (4) or (6),



(4)

(wherein CHO and R^2 are substituents bonded to a carbon atom of a pyridine ring; R^2 represents an alkyl group; k is an integer of 0 to 4)



(6)

(wherein CHO and R^3 are substituents bonded to a carbon atom of a thiophene ring; R^3 represents an alkyl group; m is an integer of 0 to 3).

These compounds are found in examples1 to 7 of the specification. See also pages 9 and 10 of the specification, for example, and original claims 3 and 5, now cancelled. Applicants' specification is enabling with respect to these heterocyclic aldehydes. Accordingly, reconsideration and withdrawal of the rejection is requested.

Claims 1-4 were rejected in the Office Action under 35 U.S.C. §102(b) as being anticipated by Inokuchi, et al. (J. of Org. Chem.) as stated on page 2 of the Office Action.

Claims 1-4 were further rejected in the Office Action under 35 U.S.C. §102(b) as being anticipated by Inokuchi, et al. (Bull. Chem. Soc.) as indicated on pages 2 and 3 of the Office Action.

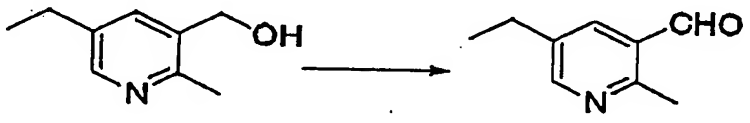
These rejections are hereby traversed and reconsideration thereof is respectfully requested in view of the above amendments to the claims and Applicants' remarks set forth below.

The present invention can provide a process for preparing pyridinecarbaldehyde by oxidizing a pyridinemethanol with high selectivity and high yield in the case that a 2,2,6,6-tetramethylpiperidine-1-oxyl derivative having at least four 2,2,6,6-tetramethylpiperidine-1-oxyl-4-yl groups (hereinafter referred to as DERIVATIVE-A) is used instead of 2,2,6,6-tetramethylpiperidine-1-oxyl. As described in lines 13 to 26, page 10 of the

instant specification, it is important to use a DERIVATIVE-A in the oxidization reaction of pyridinemethanol. By conducting oxidization reaction using such DERIVATIVE-A, side reactions can be inhibited and heterocyclic aldehyde can be prepared selectively with high yield. This effect is apparent from a comparison with Examples and Comparative Examples of the instant specification. Specifically, Example 1 of the instant specification, see page 36, (the oxidation reaction of 3-pyridinemethanol when using PIPO), 3-pyridinecarbaldehyde is produced with a yield of 90.1% and nicotinic acid (byproduct) was produced with a yield of 3.4%, and in Comparative Example 1, see page 39, (the oxidization reaction of 3-pyridinemethanol when using 2,2,6,6-tetramethylpiperidine-1-oxyl), 3-pyridinecarbaldehyde is produced with a yield of only 61.2% and nicotinic acid is produced with a yield of 9.2%.

The aforementioned applied references relied upon in the rejection of claim 1 do not anticipate Applicants' process for preparing heterocyclic aldehyde as recited in claim 1 as amended.

The *J. Org. Chem.* 1990, 55, 462-466 (hereinafter referred to as D1) discloses a oxidation reaction of alcohols leading to the corresponding aldehydes in the presence of 4-(benzoyloxy)-2, 2, 6, 6-tetramethylpipertidine-1-oxyl and $NaBrO_2$ (co-oxidant). Also, D1 discloses that the following oxidation reaction (1) is conducted in the presence of $NaBrO_2$ and 4-(benzoyloxy)-2,2,6,6-tetramethylpipertidine-1-oxyl (Table II entry 12).



(1)

However, D1 neither describes nor suggests DERIVATIVE-A.

The *Bull. Chem. Soc. Jpn.,* 64, 796-800 (1991) (hereinafter, referred to as D2) merely discloses that the oxidation of aromatic alcohols is conducted by using the combination of N-oxyl compounds such as 4-(benzoyloxy)-2,2,6,6-tetramethylpipertidine-1-oxyl (as an oxidant) and tetraalkylammonium tribromides such as Bu_4NBr_3 (as a co-oxidant) instead of using the combination of 4-(benzoyloxy)-2,2,6,6-tetramethylpipertidine-1-oxyl and $NaBr0_2$ (lines 18 to 30, left column, page 799).

However, in D2, DERIVATIVE-A is neither described nor suggested.

Consequently, the present invention as recited in claim 1 as amended differs from D1 and D2 in using a 2,2,6,6-tetramethylpiperidine-1-oxyl derivative having at least four 2,2,6,6-tetramethylpiperidine-1-oxyl-4-yl groups. Also, D1 and D2 neither describe nor suggest the above excellent effects of the present invention and a 2,2,6,6-tetramethylpiperidine-1-oxyl derivative having at least four 2,2,6,6-tetramethylpiperidine-1-oxyl-4-yl groups. Therefore, the present invention, which exhibits the excellent effect by using a 2,2,6,6-tetramethylpiperidine-1-oxyl derivative having at least four 2,2,6,6-tetramethylpiperidine-1-oxyl-4-yl groups, cannot be reached from D1 and D2, 35 U.S.C. §102(b)/103.

New claim 7 is also believed to patentably define over the cited references.

In view of the above amendments and remarks, reconsideration and allowance of claims 1 and 7 is requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR §1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to

Deposit Account No. 01-2135 (Case No. 512.44300X00) and please credit any excess fees to such deposit account.

Respectfully submitted,

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Attachments